Hands-on Lab: Stored Procedures in MySQL using phpMyAdmin

Estimated time needed: 20 minutes

In this lab, you will learn how to create tables and load data in the MySQL database service using the phpMyAdmin graphical user interface (GUI) tool.

Software Used in this Lab

In this lab, you will use MySQL. MySQL is a Relational Database Management System (RDBMS) designed to efficiently store, manipulate, and retrieve data.

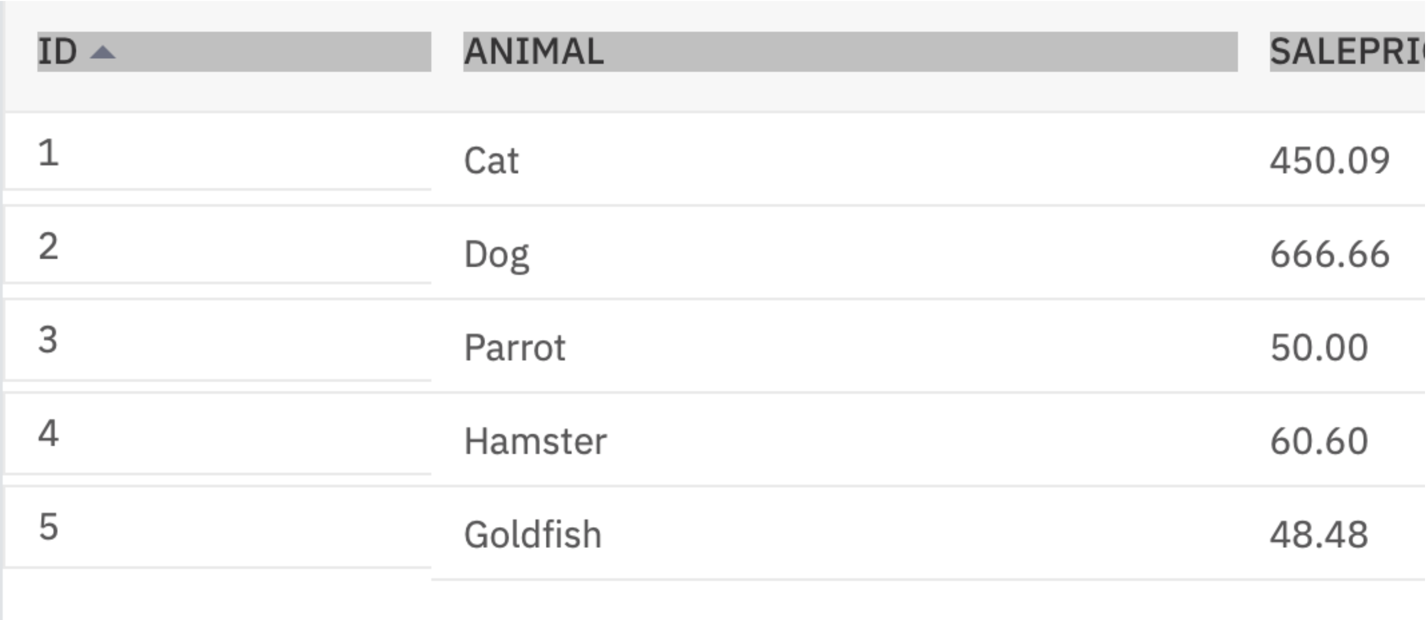
To complete this lab you will utilize MySQL relational database service available as part of IBM Skills Network Labs (SN Labs) Cloud IDE. SN Labs is a virtual lab environment used in this course.

Database Used in this Lab

Mysql_learners database has been used in this lab.

Data Used in this Lab

The data used in this lab is internal data. You will be working on the **PETSALE** table.



ID ▲	ANIMAL	SALEPRI
1	Cat	450.09
2	Dog	666.66
3	Parrot	50.00
4	Hamster	60.60
5	Goldfish	48.48

This lab requires you to have the PETSALE table populated with sample data on mysql phpadmin interface. You might have created and populated a PETSALE table in a previous lab. But for this lab, it is recommended you download the `PETSALE-CREATE-v2.sql` script below, upload it to phpadmin console and run it. The script will create a new PETSALE table dropping any previous PETSALE table if exists, and will populate it with the required sample data.

- PETSALE-CREATE-v2.sql

Objectives

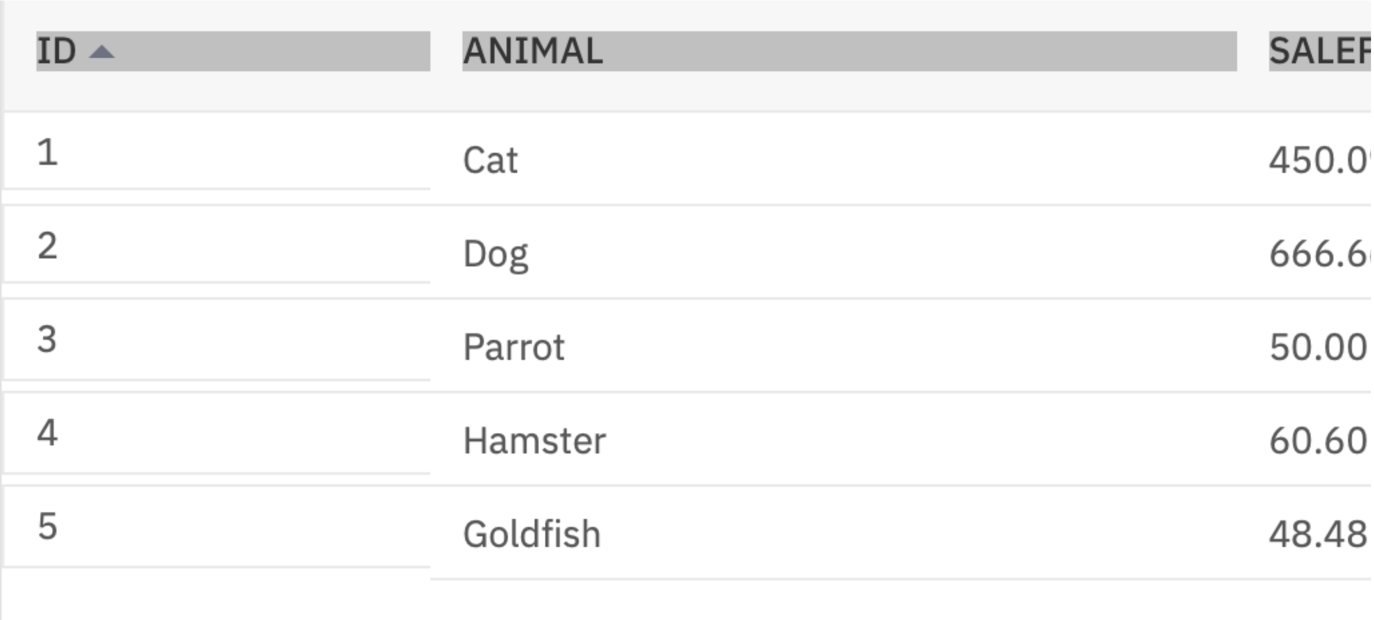
After completing this lab, you will be able to:

- Create stored procedures
- Execute stored procedures

Exercise 1

In this exercise, you will create and execute a stored procedure to read data from a table on mysql phpadmin using SQL.

1. Make sure you have created and populated the **PETSALE** table following the steps in the **“Data Used in this Lab”** section of this lab.



ID ▲	ANIMAL	SALEF
1	Cat	450.0
2	Dog	666.6
3	Parrot	50.00
4	Hamster	60.60
5	Goldfish	48.48

2.
   - You will create a stored procedure routine named **RETRIEVE_ALL**.
   - This **RETRIEVE_ALL** routine will contain an SQL query to retrieve all the records from the PETSALE table, so you don't need to write the same query over and over again. You just call the stored procedure routine to execute the query everytime.
   - To create the stored procedure routine, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
DELIMITER //

CREATE PROCEDURE RETRIEVE_ALL()

BEGIN

   SELECT *  FROM PETSALE;


END //

DELIMITER ;
```

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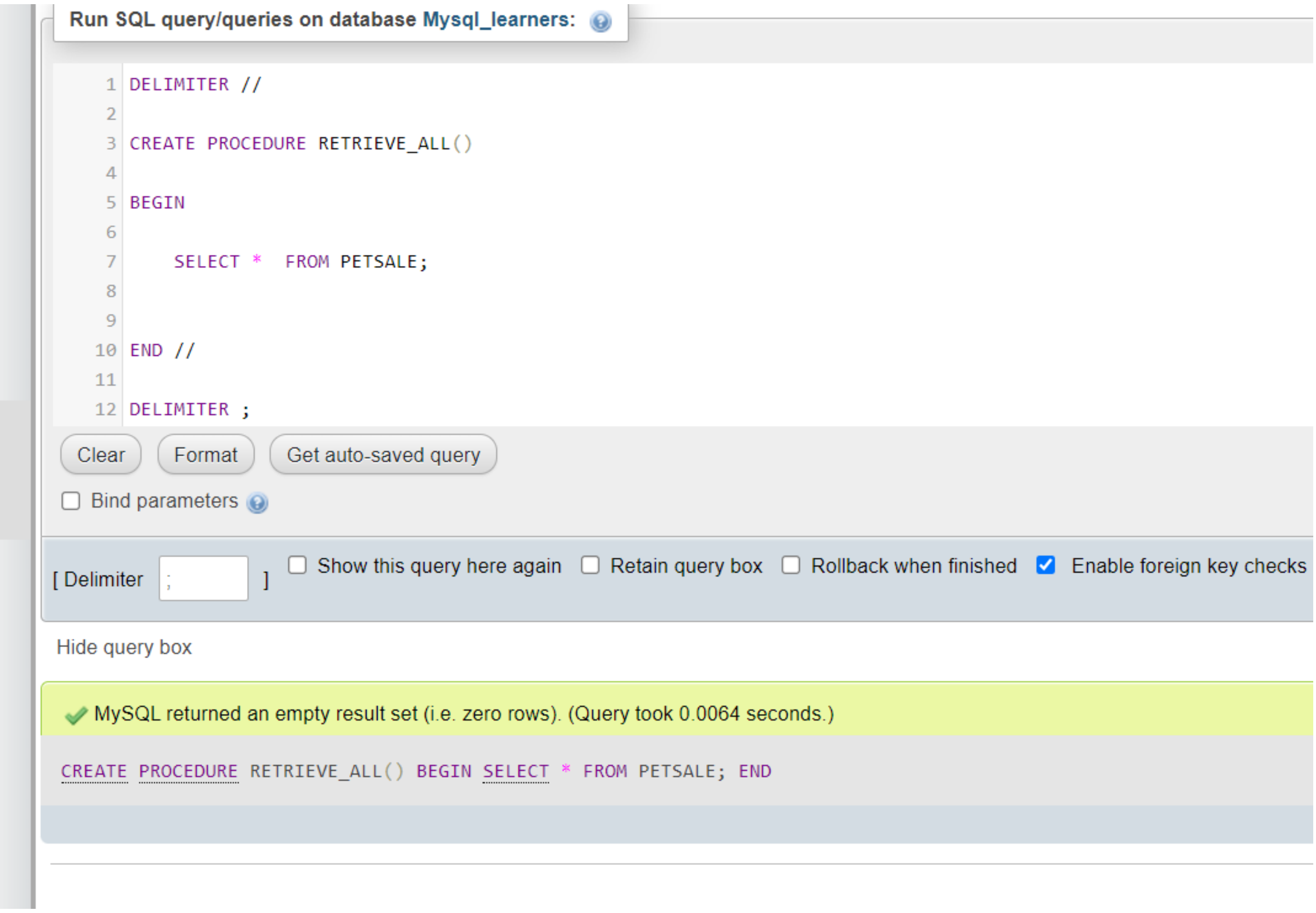
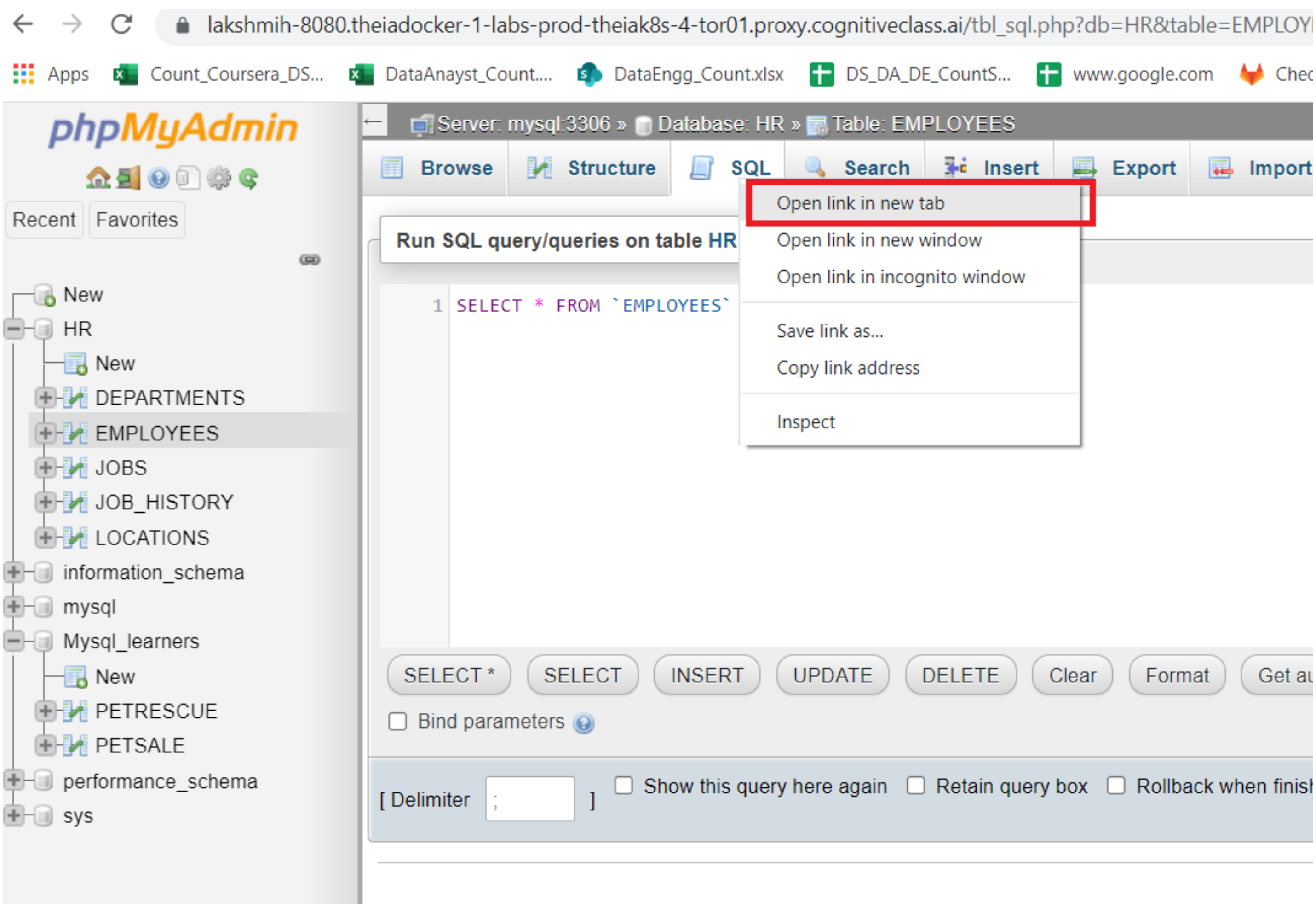


```
DELIMITER //

CREATE PROCEDURE RETRIEVE_ALL()

BEGIN

    SELECT *  FROM PETSALE;


END //

DELIMITER ;
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0064 seconds.)

```
CREATE PROCEDURE RETRIEVE_ALL() BEGIN SELECT * FROM PETSALE; END
```

3. To call the RETRIEVE_ALL routine, open another **SQL** tab by clicking **Open in new Tab**



```
SELECT * FROM `EMPLOYEES`
```

Delete the default line which appears so that you will get a blank window.

copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
1. 1
1.     CALL RETRIEVE_ALL;
```

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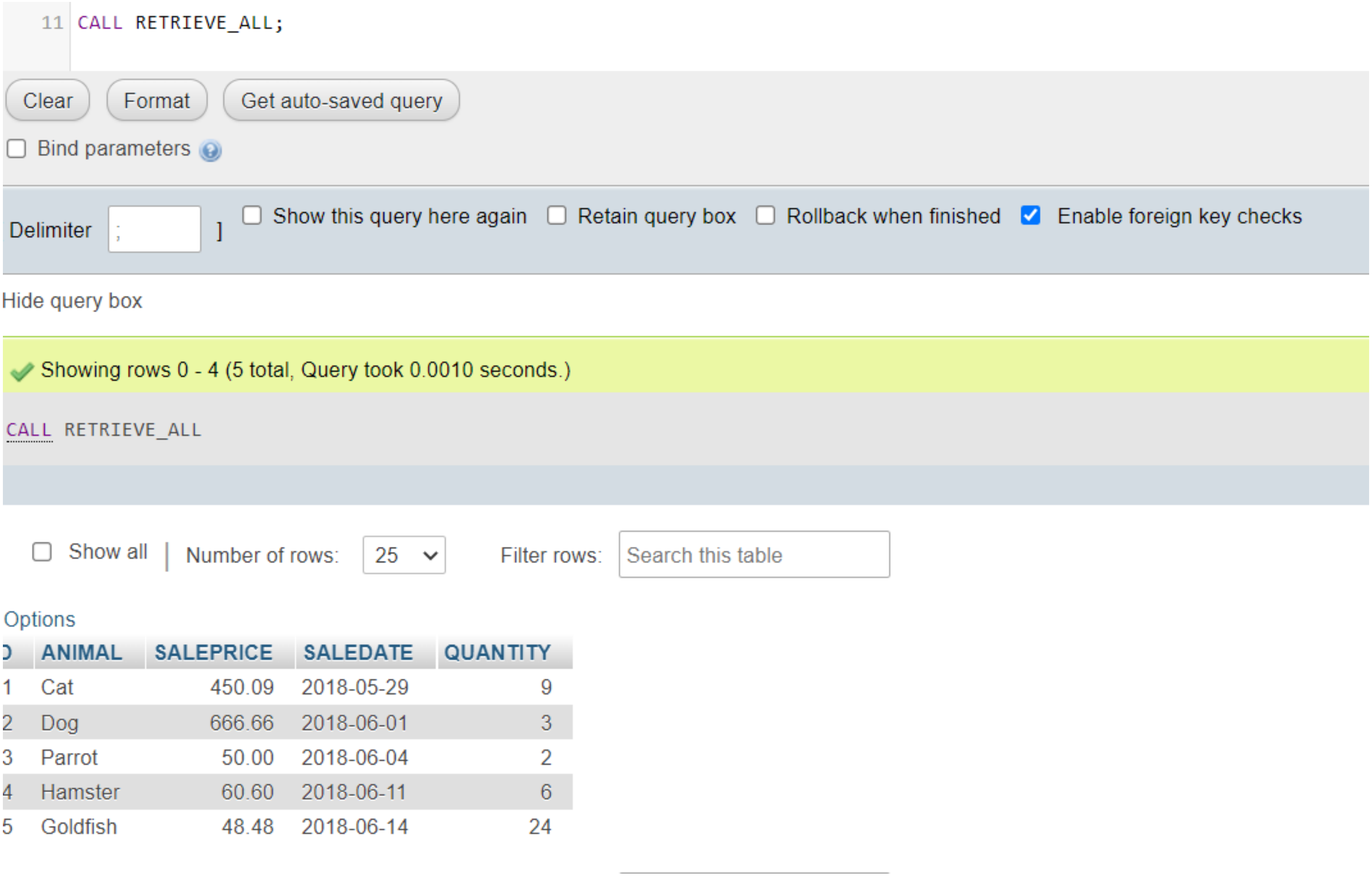


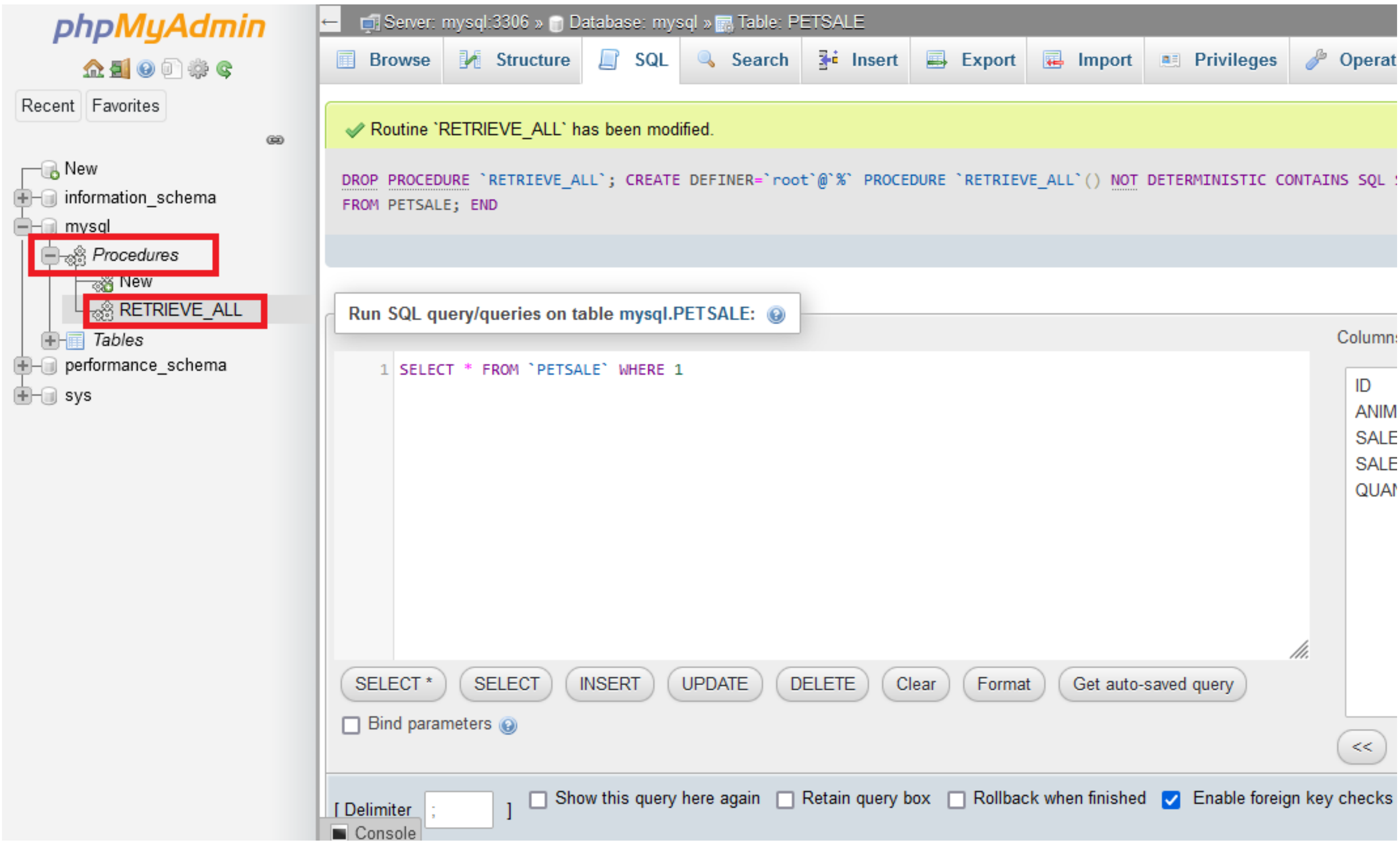
```
CALL RETRIEVE_ALL;
```

✓ Showing rows 0 - 4 (5 total, Query took 0.0010 seconds.)

```
CALL RETRIEVE_ALL
```

D	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

4. You can view the created stored procedure routine RETRIEVE_ALL. On the left panel, expand the mysql option. Click on **Procedures** then click on the **RETRIEVE_ALL** and view the procedure.



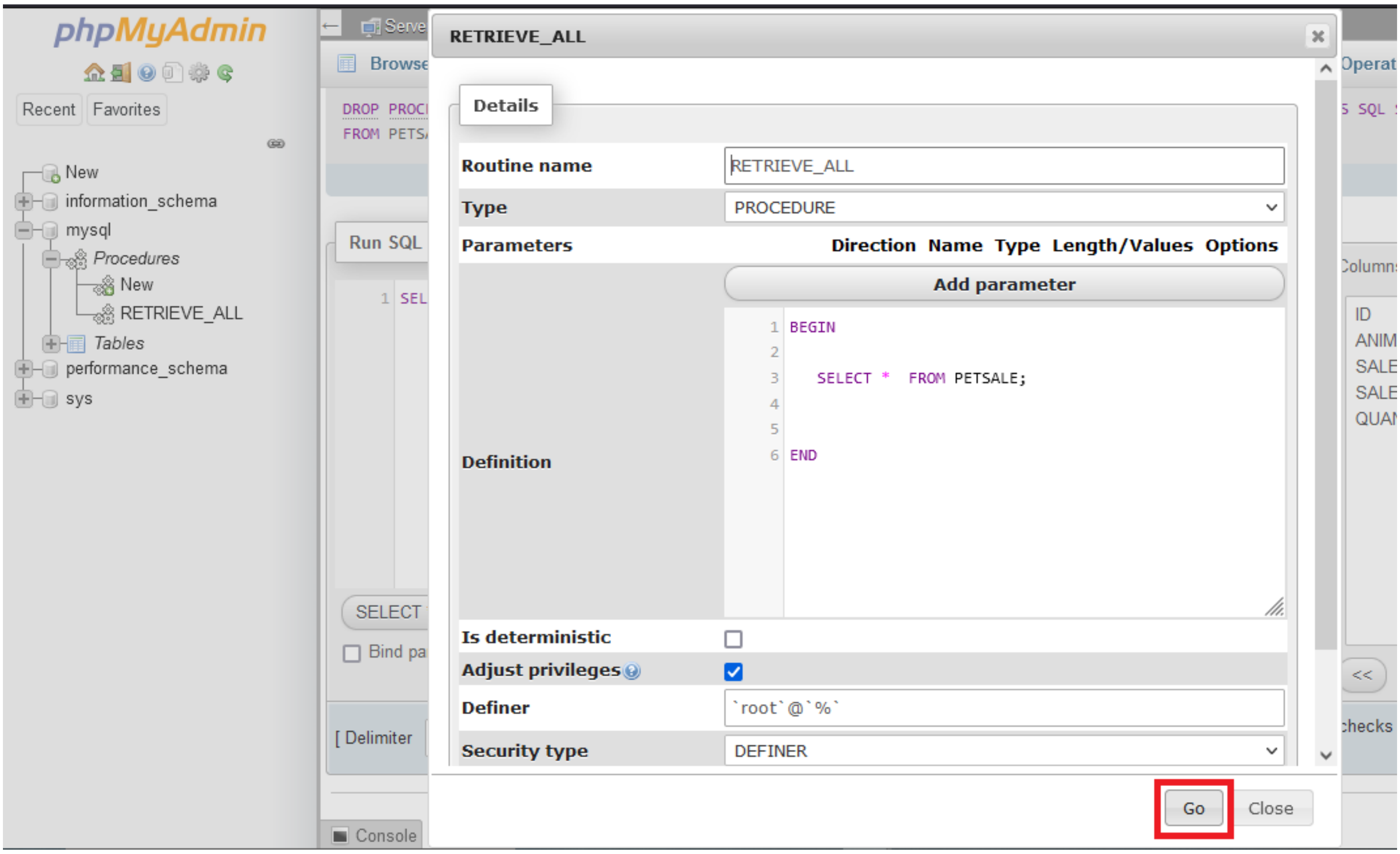
✓ Routine `RETRIEVE_ALL` has been modified.

```
DROP PROCEDURE `RETRIEVE_ALL`; CREATE DEFINER=`root`@`%` PROCEDURE `RETRIEVE_ALL`() NOT DETERMINISTIC CONTAINS SQL
FROM PETSALE; END
```

Run SQL query/queries on table mysql.PETSALE:

```
SELECT * FROM `PETSALE` WHERE 1
```

After clicking on the Procedure **Retrieve_All**, you can view the procedure definition and execute it by clicking on **GO**.



RETRIEVE_ALL

Routine name	RETRIEVE_ALL
Type	PROCEDURE
Parameters	Direction Name Type Length/Values Options
Definition	see below
Is deterministic	□
Adjust privileges	☑
Definer	\`root\`@\`%\`
Security type	DEFINER

```
BEGIN

   SELECT *  FROM PETSALE;


END
```

5. If you wish to drop the stored procedure routine RETRIEVE_ALL, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
DROP PROCEDURE RETRIEVE_ALL;

CALL RETRIEVE_ALL;
```

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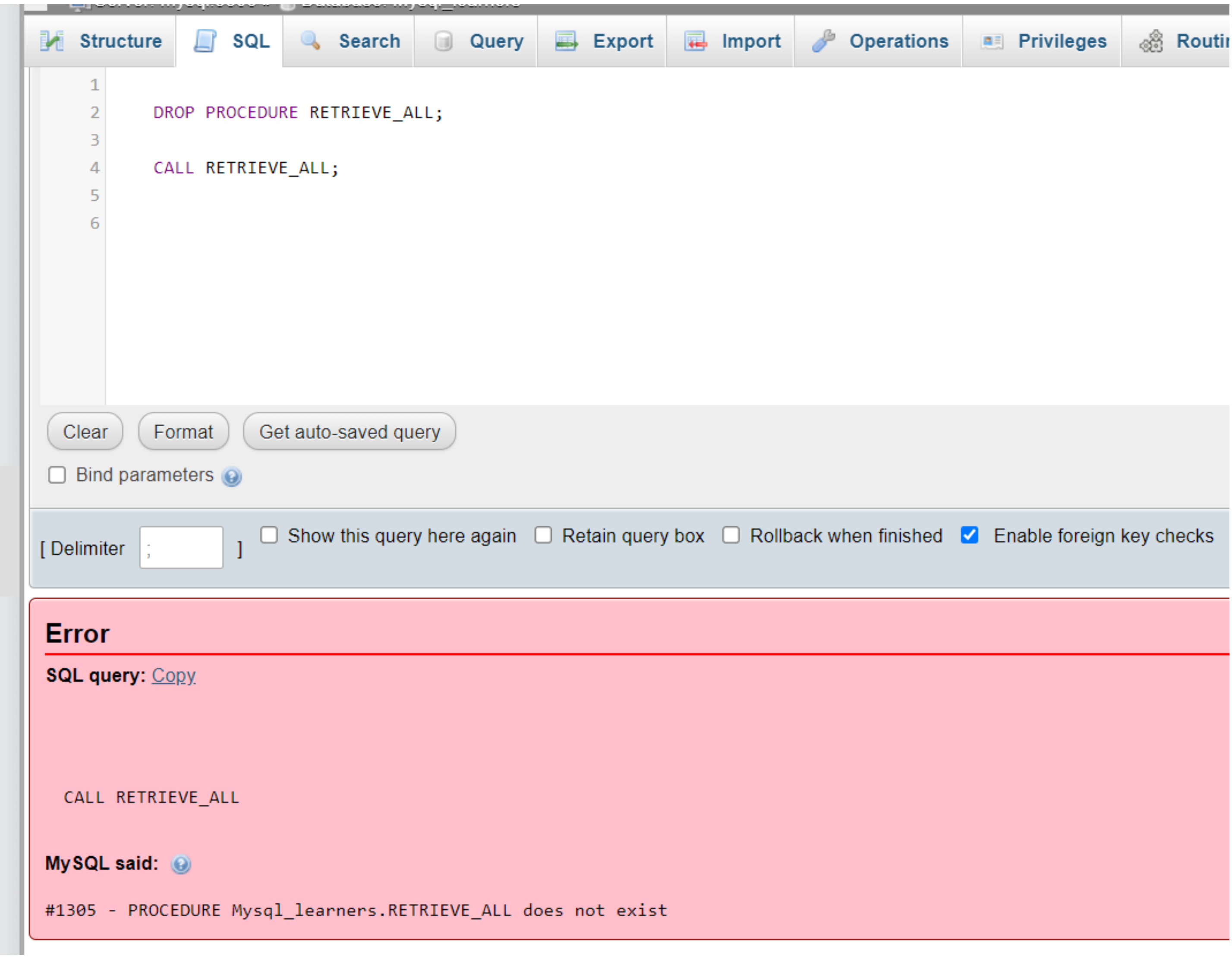


```
DROP PROCEDURE RETRIEVE_ALL;

CALL RETRIEVE_ALL;
```

□ Bind parameters

[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks

Error

SQL query: Copy

```
CALL RETRIEVE_ALL
```

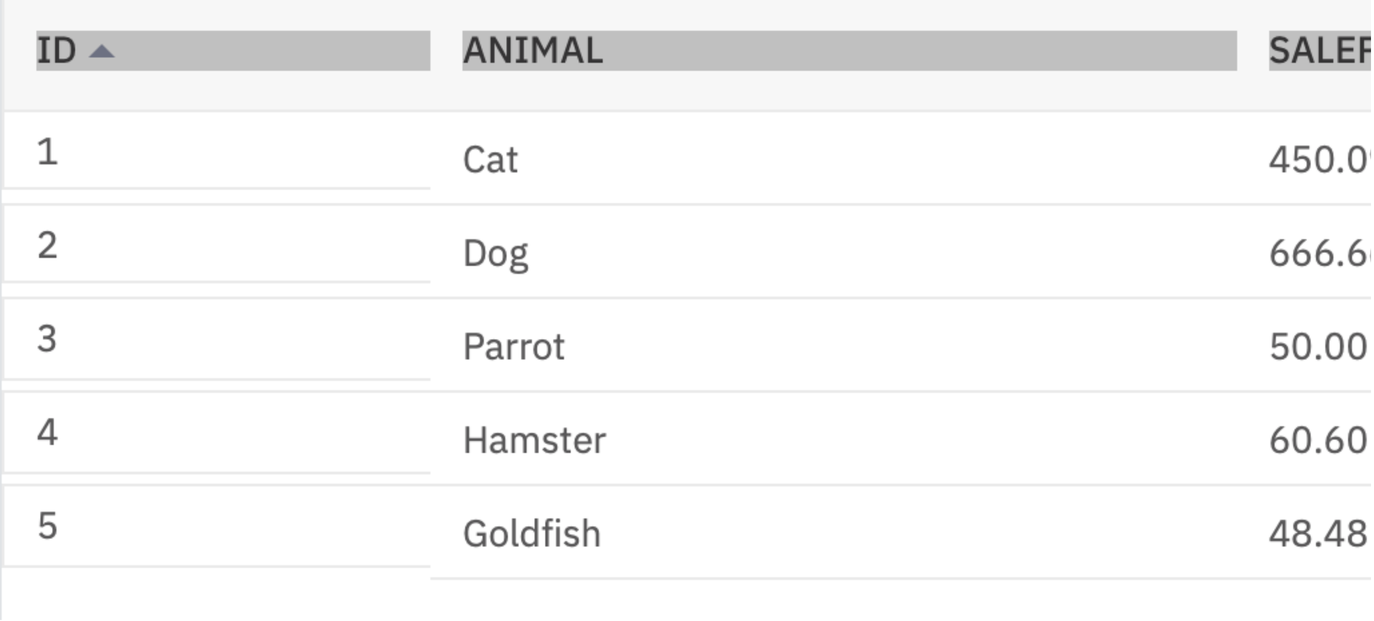
MySQL said:

```
#1305 - PROCEDURE Mysql_learners.RETRIEVE_ALL does not exist
```

Exercise 2

In this exercise, you will create and execute a stored procedure to write/modify data in a table on Db2 using SQL.

1. Make sure you have created and populated the **PETSALE** table following the steps in the **“Data Used in this Lab”** section of this lab.



ID ▲	ANIMAL	SALEF
1	Cat	450.0
2	Dog	666.6
3	Parrot	50.00
4	Hamster	60.60
5	Goldfish	48.48

2.
    - You will create a stored procedure routine named **UPDATE_SALEPRICE** with parameters **Animal_ID** and **Animal_Health**.
    - This **UPDATE_SALEPRICE** routine will contain SQL queries to update the sale price of the animals in the PETSALE table depending on their health conditions, **BAD** or **WORSE**.

  - This procedure routine will take animal ID and health conditon as parameters which will be used to update the sale price of animal in the PETSALE table by an amount depending on their health condition. Suppose -
    - For animal with ID XX having BAD health condition, the sale price will be reduced further by 25%.
    - For animal with ID YY having WORSE health condition, the sale price will be reduced further by 50%.
    - For animal with ID ZZ having other health condition, the sale price won’t change.

- To create the stored procedure routine, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
DELIMITER @
CREATE PROCEDURE UPDATE_SALEPRICE (
   IN Animal_ID INTEGER, IN Animal_Health VARCHAR(5) )
BEGIN

   IF Animal_Health = 'BAD' THEN
       UPDATE PETSALE
       SET SALEPRICE = SALEPRICE - (SALEPRICE * 0.25)
       WHERE ID = Animal_ID;

   ELSEIF Animal_Health = 'WORSE' THEN
       UPDATE PETSALE
       SET SALEPRICE = SALEPRICE - (SALEPRICE * 0.5)
       WHERE ID = Animal_ID;

   ELSE
       UPDATE PETSALE
       SET SALEPRICE = SALEPRICE
       WHERE ID = Animal_ID;

   END IF;

END @

DELIMITER ;

```

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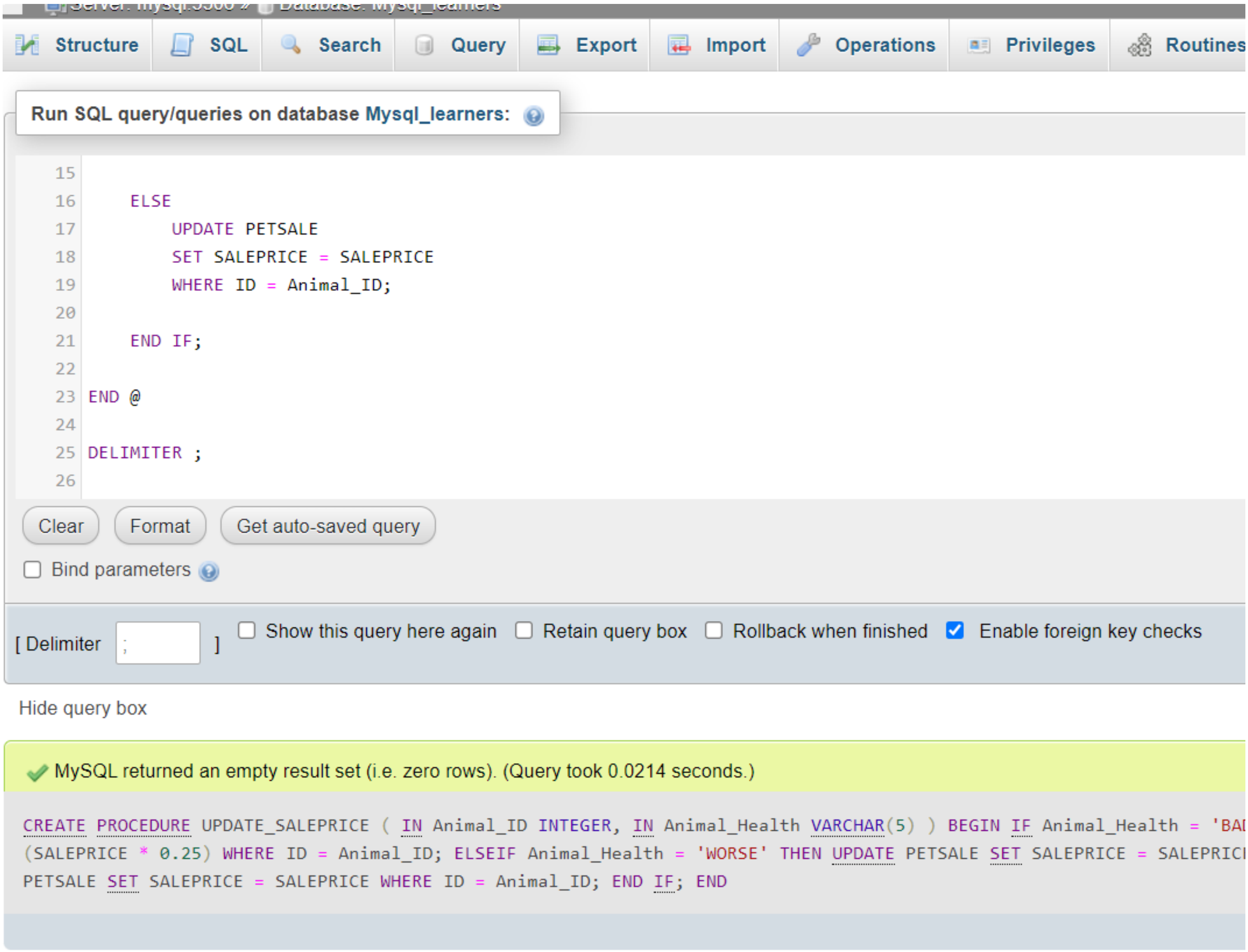


Run SQL query/queries on database Mysql_learners:

```

    ELSE
        UPDATE PETSALE
        SET SALEPRICE = SALEPRICE
        WHERE ID = Animal_ID;

    END IF;

END @

DELIMITER ;

```

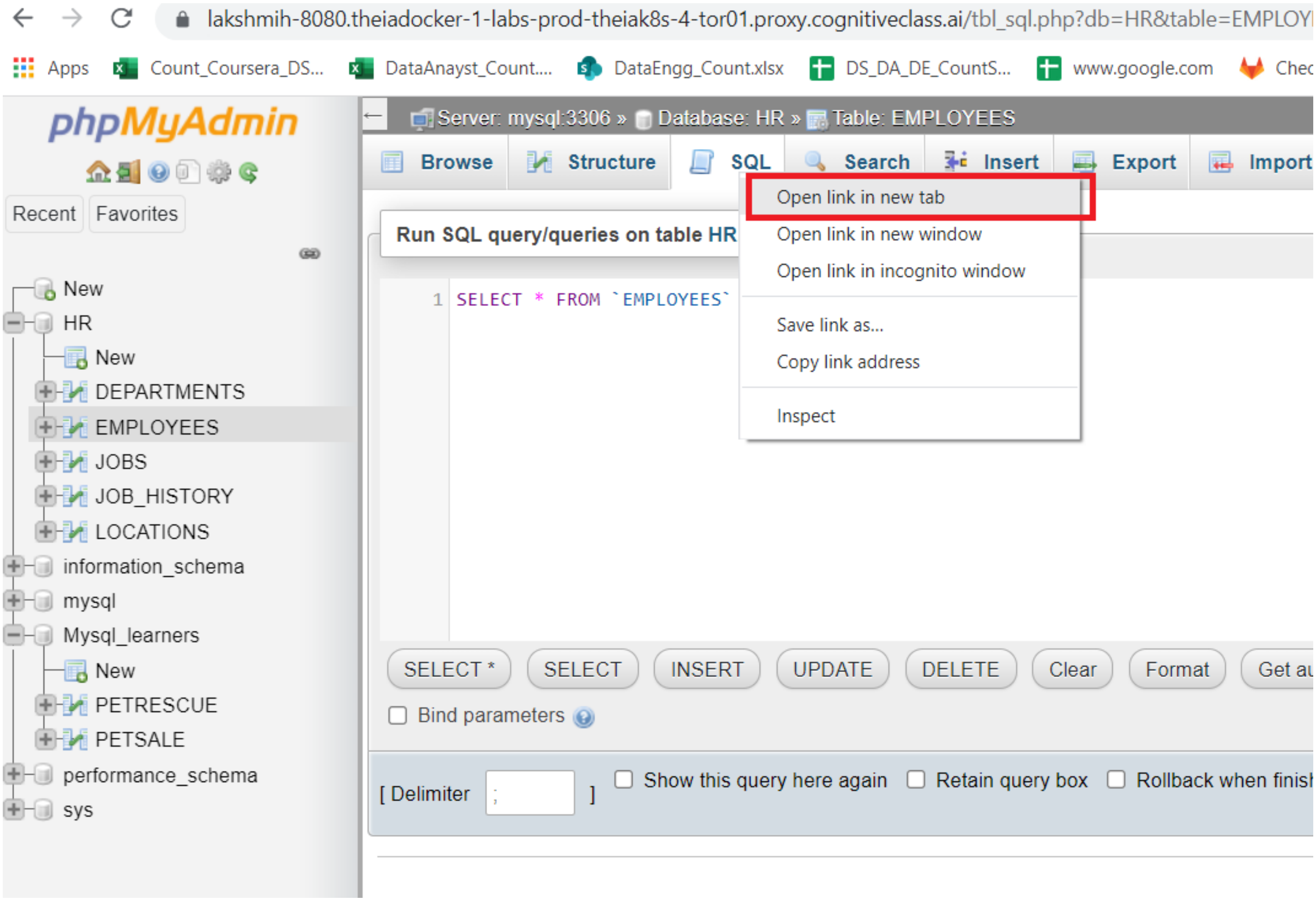
□ Bind parameters

[Delimiter ;] □ Show this query here again □ Retain query box □ Rollback when finished ☑ Enable foreign key checks

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0214 seconds.)

```
CREATE PROCEDURE UPDATE_SALEPRICE ( IN Animal_ID INTEGER, IN Animal_Health VARCHAR(5) ) BEGIN IF Animal_Health = 'BAI
(SALEPRICE * 0.25) WHERE ID = Animal_ID; ELSEIF Animal_Health = 'WORSE' THEN UPDATE PETSALE SET SALEPRICE = SALEPRICI
PETSALE SET SALEPRICE = SALEPRICE WHERE ID = Animal_ID; END IF; END
```

3. Let’s call the UPDATE_SALEPRICE routine. We want to update the sale price of animal with ID **1** having **BAD** health condition in the PETSALE table. open another **SQL** tab by clicking **Open in new Tab**



```
SELECT * FROM `EMPLOYEES`
```

Delete the default line which appears so that you will get a blank window.

copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

Note if you have dropped RETREIVE_ALL procedure rerun the creation script of that procedure before executing these lines.

```
CALL RETRIEVE_ALL;

CALL UPDATE_SALEPRICE(1, 'BAD');

CALL RETRIEVE_ALL;
```

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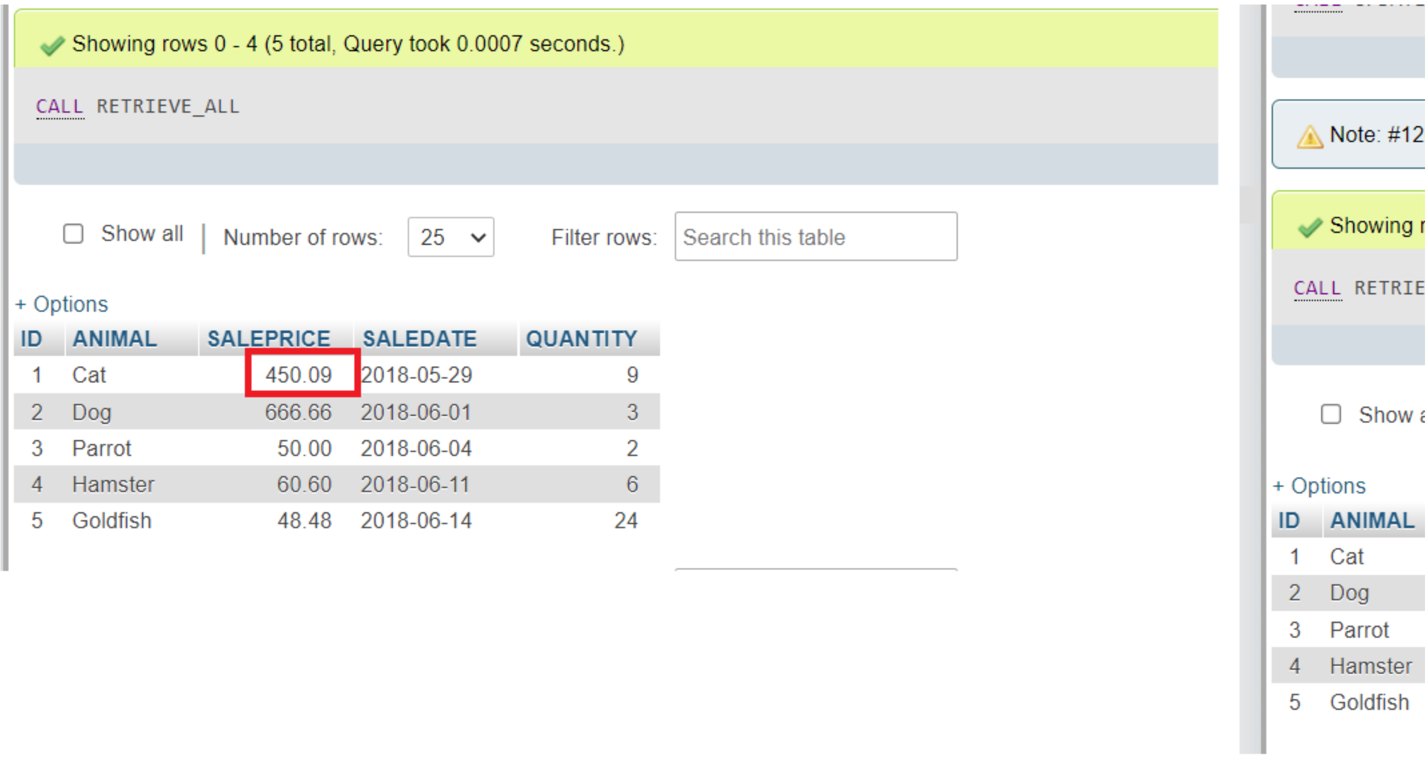

✓ Showing rows 0 - 4 (5 total, Query took 0.0007 seconds.)

```
CALL RETRIEVE_ALL
```

□ Show all | Number of rows: 25 Filter rows: Search this table

+ Options

ID	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

Note: #12

✓ Showing r

```
CALL RETRIE
```

□ Show a

+ Options

ID	ANIMAL
1	Cat
2	Dog
3	Parrot
4	Hamster
5	Goldfish

4. Let’s call the UPDATE_SALEPRICE routine once again. We want to update the sale price of animal with ID **3** having **WORSE** health condition in the PETSALE table. copy the code below and paste it to the textarea of the **SQL** page. Click **Go**. You will have all the records retrieved from the PETSALE table.

```
CALL RETRIEVE_ALL;

CALL UPDATE_SALEPRICE(3, 'WORSE');

CALL RETRIEVE_ALL;
```

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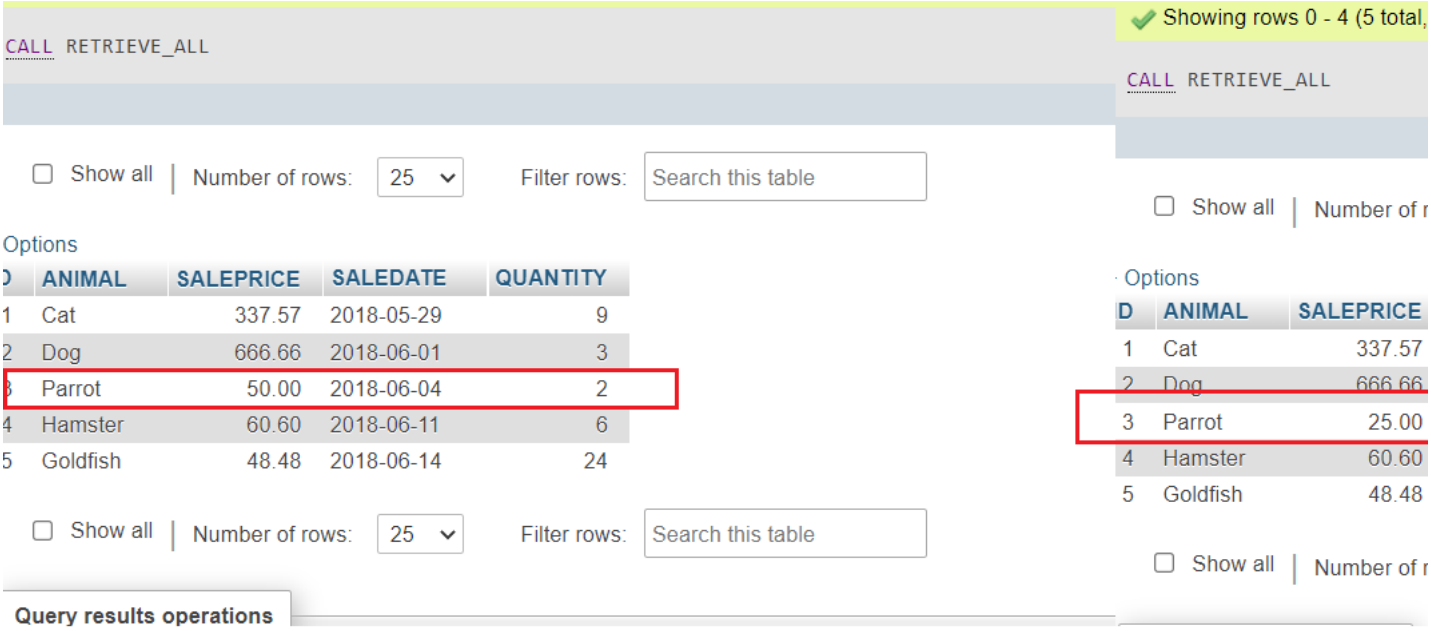


```
CALL RETRIEVE_ALL
```

□ Show all | Number of rows: 25 Filter rows: Search this table

Options

D	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	337.57	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

□ Show all | Number of rows: 25 Filter rows: Search this table

Query results operations

✓ Showing rows 0 - 4 (5 total,

```
CALL RETRIEVE_ALL
```

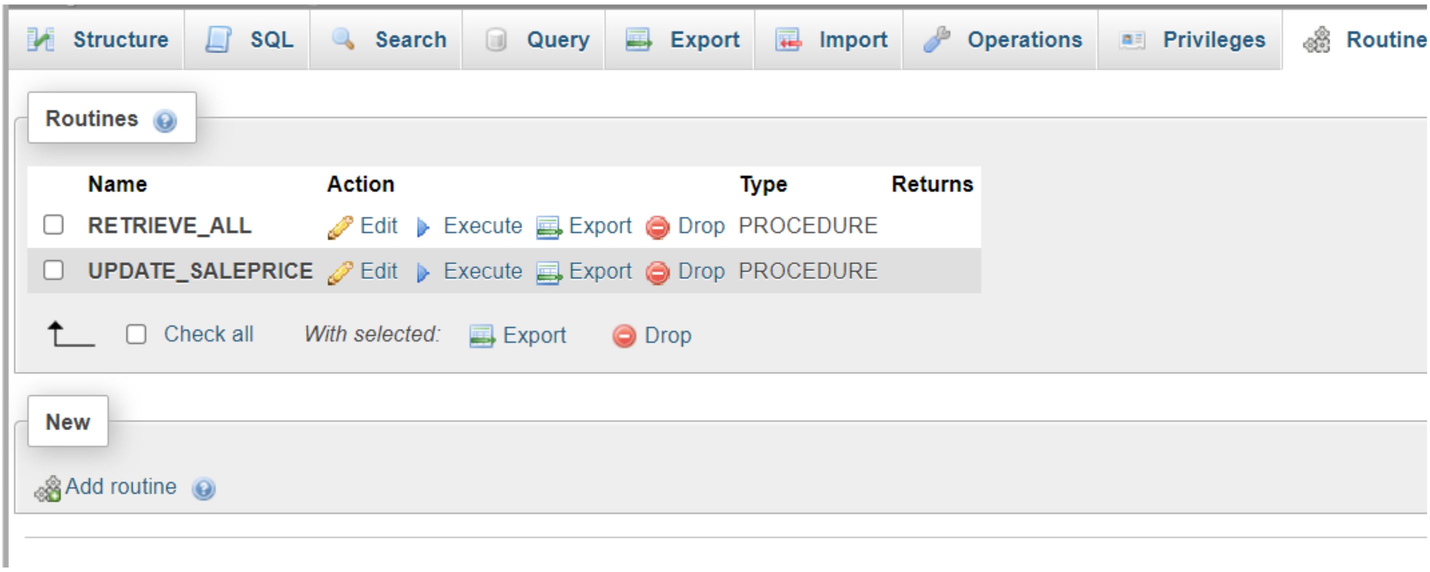
□ Show all | Number of r

Options

D	ANIMAL	SALEPRICE
1	Cat	337.57
2	Dog	666.66
3	Parrot	25.00
4	Hamster	60.60
5	Goldfish	48.48

□ Show all | Number of r

5. You can view the created stored procedure routine UPDATE_SALEPRICE. Click on the **Routines** and view the procedure.



Routines

	Name	Action	Type	Returns
□	RETRIEVE_ALL	Edit Execute Export Drop	PROCEDURE	
□	UPDATE_SALEPRICE	Edit Execute Export Drop	PROCEDURE	

6. If you wish to drop the stored procedure routine UPDATE_SALEPRICE, copy the code below and paste it to the textarea of the **SQL** page. Click **Go**.

```
DROP PROCEDURE UPDATE_SALEPRICE;

CALL UPDATE_SALEPRICE;
```

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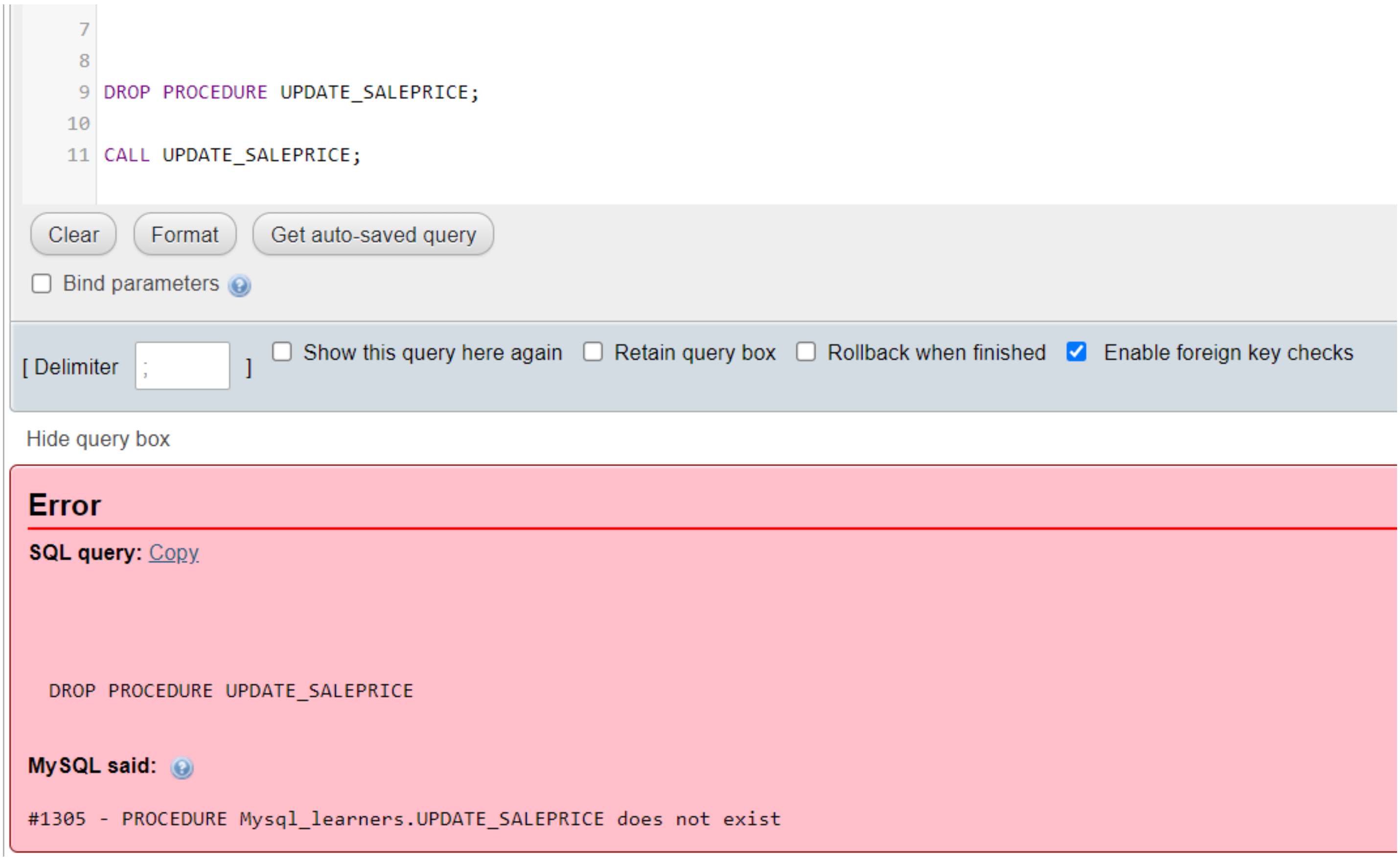

```
DROP PROCEDURE UPDATE_SALEPRICE;

CALL UPDATE_SALEPRICE;
```

Error

SQL query: Copy

```
DROP PROCEDURE UPDATE_SALEPRICE
```

MySQL said:

```
#1305 - PROCEDURE Mysql_learners.UPDATE_SALEPRICE does not exist
```

Congratulations! You have completed this lab on creating stored procedures in MySQL, and are ready for the next topic.

Author(s)

Lakshmi Holla

Malika Singla

Changelog

Date	Version	Changed by	Change Description
2021-08-09	0.2	Sathya Priya	Updated HTML tags and SQL link
2021-11-01	0.1	Lakshmi Holla, Malika Singla	Initial Version